

REMARKS

Claims 1 and 27-55 are pending, with claims 1, 32, 38, 44, and 50 being independent. Claims 2-26 have been cancelled. Claims 1, 27, 28, 30, 32-34, 36, 38-40, 42, 44-46, 48, and 50-54 have been amended. Support for the amendments to the claims and the specification may be found in the application at, for example, page 5, lines 8-15 (as amended herein), page 10, line 18 to page 11, line 1, and page 23, line 26 to page 24, line 7. No new matter has been introduced.

Claim Objections

Claims 30, 36, 42, 48, and 54 have been objected to for reciting "metylphenyl." All instances of "metylphenyl" have been deleted from claims 30, 36, 42, 48, and 54. Accordingly, applicant respectfully requests reconsideration and withdrawal of this objection.

Claim Rejections—35 U.S.C. § 112

Claims 27, 28, 33, 34, 39, 40, 45, 46, 51, and 52

Claims 27, 28, 33, 34, 39, 40, 45, 46, 51, and 52 have been rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement. The Office Action indicates that the definition of "x" as a natural number is not clear. In response, claims 27, 28, 33, 34, 39, 40, 45, 46, 51, and 52 have been amended to delete "numeral x is a natural number." Accordingly, applicant respectfully requests reconsideration and withdrawal of this rejection of claims 27, 28, 33, 34, 39, 40, 45, 46, 51, and 52.

Claims 1 and 27-55

Claims 1 and 27-55 have been rejected under 35 U.S.C. § 112, second paragraph. In the first and second paragraph of page 3, the Office Action indicates that it is not clear if "pieces" are "discrete atoms" and that "3" should be "3". In response, independent claims 1, 32, 38, 44, and 50 have been amended to recite "atoms/cm³." The application indicates that atoms are a unit of SIMS measurements at, for example, page 23, line 26 to page 24, line 7.

In the third paragraph of page 3, the Office Action indicates that it is not clear which "organic compound" of claim 50 is being referred to in claim 54. In response, claim 54 has been amended to recite "the second organic compound."

In the fourth paragraph of page 3, the Office Action indicates that only one of the compounds in the Markush group of claims 30, 36, 42, 48, and 54 is "within the scope of compounds disclosed in the specification as compounds which present light emission." In response, claims 30, 36, 42, 48, and 54 have been amended to recite "the group consisted of a metal complex including a quinoline bone structure, a metal complex including a benzoxazole bone structure, and a metal complex including a benzothiazole bone structure." Support for this amendment may be found in the application at, for example, page 10, line 18 to page 11, line 1.

Accordingly, applicant respectfully requests reconsideration and withdrawal of this rejection of claims 1 and 27-55.

Claim Rejections—35 U.S.C. § 102 or 103

Claims 1 and 27-55 have been rejected as being anticipated by, or rejected as being unpatentable over, Yamazaki (U.S. Patent App. Pub. No. 2003/0124764). Yamazaki has a filing date of December 12, 2002 and a publication date of July 3, 2003. The present application claims priority, under 35 U.S.C. § 119, to JP-2002-361320, filed on December 12, 2002, and, as discussed below, the claimed subject matter finds support in the Japanese priority application. Accordingly, this application is entitled to a date of invention at least as early as December 12, 2002. As such, Yamazaki cannot qualify as prior art under § 102(e) because Yamazaki's December 12, 2002, filing date is not earlier than the December 12, 2002 priority date of the present application. Yamazaki also cannot qualify as prior art under § 102(a) because Yamazaki's July 3, 2003 publication date is after the December 12, 2002 priority date of the present application. Because Yamazaki cannot qualify as prior art under §§ 102(a) and 102(e), Yamazaki cannot qualify as prior art under § 103.

Pursuant to MPEP § 706.02(b)(E), applicants are including a certified copy and full English translation of JP-2002-361320 to perfect the foreign priority claim. As shown in that translation, the claimed subject matter finds support in the Japanese priority application. In

particular, the subject matter of independent claims 1, 32, 38, 44, and 50 finds support, at least, at paragraphs [0003], [0021], [0033]-[0036], [0044], [0055], [0067], and [0077]. The subject matter of dependent claims 27, 28, 33, 34, 39, 40, 45, 46, 51, and 52 finds support at paragraph [0020]. The subject matter of dependent claims 29, 35, 41, 47, and 53 finds support at paragraph [0003]. The subject matter of dependent claims 30, 36, 42, 48, and 54 finds support at paragraph [0035]. The subject matter of dependent claims 31, 37, 43, 49, and 55 finds support at paragraphs [0047] and [0048].

Accordingly, applicants submit that Yamazaki may not be used to preclude patentability under § 102(e), § 102(a), or § 103 and, therefore, applicant respectfully requests reconsideration and withdrawal of the rejection of claims 1 and 27-55.

Claim Rejections—35 U.S.C. § 103

Claims 1, 28-32, 34-38, 40-44, 46-50, and 52-55

Claims 1, 28-32, 34-38, 40-44, 46-50, and 52-55 have been rejected under 35 U.S.C. § 103 as being unpatentable over King (U.S. Patent App. Pub. No. 2005/0029931). Applicants respectfully request reconsideration and withdrawal of this rejection because King does not describe or suggest all of the features of amended independent claims 1, 32, 38, 44, and 50.

Amended independent claims 1 and 32 recite, in part, an EL layer including silicon, with 1×10^{18} - 5×10^{20} atoms/cm³ by SIMS measurement, amended independent claims 38 and 44 recite, in part, a light emitting layer including silicon, with 1×10^{18} - 5×10^{20} atoms/cm³ by SIMS measurement, and amended independent claim 50 recites, in part, a mixed region including silicon, with 1×10^{18} - 5×10^{20} atoms/cm³ by SIMS measurement.

King discloses a concentration of particles, such as silica, of between 0.01 and 10 mg/ml in an organic medium. See Office Action mailed March 25, 2008 at page 6; King at ¶¶ [0025] and [0029]. As such, as the Office Action acknowledges, King does not disclose 1×10^{18} - 5×10^{20} atoms/cm³ of silicon by SIMS measurement, as recited in amended independent claims 1, 32, 38, 44, and 50.

Regardless, the Office Action contends that “[a]bsent a showing of criticality for the presently claimed range, it is the examiner's position that it would have been within the level of

ordinary skill of a worker in the art at the time of the invention to determine suitable and optimum concentrations of silicon to be included in the form of silica . . . to optimize the concentration of particles in order to optimize photostability such as taught in paragraph [0077].” See Office Action mailed March 25, 2008 at page 6. The applicant respectfully disagrees.

It has been held that “a particular parameter must first be recognized as a result-effective variable, i.e., a variable which achieves a recognized result, before the determination of the optimum or workable ranges of said variable might be characterized as routine experimentation.” See MPEP § 2144.05 (*citing In re Antonie*, 559 F.2d 618, 195 USPQ 6 (CCPA 1977)) (emphasis added). In the present application, the claimed range of silicon by SIMS measurement is selected to form a high-density film and to block an impurity, such as oxygen and moisture, that induces deterioration in the film. See application at page 4, line 3 to page 5, line 15. By contrast, as explained above, King selects a concentration of particles to optimize photostability. Therefore, it would not have been obvious to one of ordinary skill in the art at the time the invention was made to provide the claimed 1×10^{18} - 5×10^{20} atoms/cm³ of silicon by SIMS measurement to form a high-density film and to block an impurity and, thus, King does not describe or suggest 1×10^{18} - 5×10^{20} atoms/cm³ of silicon by SIMS measurement, as recited in amended independent claims 1, 32, 38, 44, and 50.

Accordingly, for at least these reasons, applicant respectfully requests reconsideration and withdrawal of this rejection of amended independent claims 1, 32, 38, 44, and 50 and their dependent claims 28-31, 34-37, 40-43, 46-49, and 52-55, respectively.

Claims 1, 27, 29-33, and 35-37

Claims 1, 27, 29-33, and 35-37 have been rejected under 35 U.S.C. § 103 as being unpatentable over Takahashi (Japanese Patent Pub. No. 09-328680). Applicants respectfully request reconsideration and withdrawal of this rejection because Takahashi does not describe or suggest all of the features of amended independent claims 1, 32, 38, 44, and 50.

Amended independent claims 1 and 32 recite, in part, an EL layer including silicon, with 1×10^{18} - 5×10^{20} atoms/cm³ by SIMS measurement, amended independent claims 38 and 44 recite, in part, a light emitting layer including silicon, with 1×10^{18} - 5×10^{20} atoms/cm³ by SIMS

measurement, and amended independent claim 50 recites, in part, a mixed region including silicon, with 1×10^{18} - 5×10^{20} atoms/cm³ by SIMS measurement.

The Office Action states that Takahashi does not disclose "a particular limit on the concentration of inorganic substance particles to be combined with the organic luminous agent." See Office Action mailed March 25, 2008 at page 8. As such, as the Office Action acknowledges, Takahashi does not disclose 1×10^{18} - 5×10^{20} atoms/cm³ of silicon by SIMS measurement, as recited in amended independent claims 1, 32, 38, 44, and 50.

Regardless, the Office Action contends that "[a]bsent a showing of criticality for the presently claimed range . . . it is the examiner's position that it would have been within the level of ordinary skill of a worker in the art at the time of the invention to determine suitable and optimum concentrations of silicon to be included in the form of particles in the organic layer of the prior art EL device in order to provide a functional device." See Office Action mailed March 25, 2008 at page 8. The applicant respectfully disagrees for several reasons.

First, the Office Action merely concludes, without any articulated reasoning, that it would have been obvious to one of ordinary skill in the art at the time of the invention to determine suitable concentrations of silicon to provide a functional device. "[R]ejections on obviousness cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness." See MPEP § 2143.01(IV) (citing *KSR International Co.*, 550 U.S. at ___, 82 USPQ2d at 1396, quoting *In re Kahn*, 441 F.3d at 988, 78 USPQ2d at 1336) (emphasis added). Therefore, the Office Action has not satisfied its burden of establishing a prima facie case of obviousness as Takahashi does not describe or suggest determining suitable concentrations of silicon to provide a functional device.

Second, as explained above, the claimed 1×10^{18} - 5×10^{20} atoms/cm³ of silicon by SIMS measurement is selected to form a high-density film and to block an impurity, such as oxygen and moisture, that induces deterioration in the film. Therefore, even assuming that Takahashi determines suitable concentrations of silicon to provide a functional device, Takahashi does not suggest determining suitable concentrations of silicon to form a high-density film and to block an

impurity. Therefore, it would not have been obvious to one of ordinary skill in the art at the time the invention was made to provide the claimed 1×10^{18} - 5×10^{20} atoms/cm³ of silicon by SIMS measurement to form a high-density film and to block an impurity and, thus, Takahashi does not describe or suggest 1×10^{18} - 5×10^{20} atoms/cm³ of silicon by SIMS measurement, as recited in amended independent claims 1, 32, 38, 44, and 50.

Accordingly, for at least these reasons, applicant respectfully requests reconsideration and withdrawal of this rejection of amended independent claims 1 and 32 and their dependent claims 27, 29-31, 33, and 35-37, respectively.

Conclusion

Applicants submit that all claims are in condition for allowance.

It is believed that all of the pending issues have been addressed. However, the absence of a reply to a specific rejection, issue or comment does not signify agreement with or concession of that rejection, issue or comment. In addition, because the arguments made above may not be exhaustive, there may be reasons for patentability of any or all pending claims (or other claims) that have not been expressed. Finally, nothing in this reply should be construed as an intent to concede any issue with regard to any claim, except as specifically stated in this reply, and the amendment of any claim does not necessarily signify concession of unpatentability of the claim prior to its amendment.

The fee in the amount of \$120 in payment of a one-month extension of time fee is being paid concurrently herewith on the Electronic Filing System (EFS) by way of Deposit Account authorization. Please apply any other charges or credits to Deposit Account No. 06-1050.

Respectfully submitted,

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